CLAIMS:

1. Diversity system (3) for transmitting a signal (4) comprising at least two sub-carriers from a first unit (1) to a second unit (2,2a), which first unit (1) comprises a transmitter (11) for transmitting the signal (4), which second unit (2,2a) comprises a receiver (22,22a) coupled to at least two antennas (25,26) located at different positions for receiving the signal (4), which receiver (22,22a) comprises a transforming module (38,38a) for converting received antenna signals into sub-carrier-vectors per sub-carrier and per antenna (25,26) and a processing module (39,39a) for processing the sub-carrier-vectors per sub-carrier.

2. Diversity system (3) as defined in claim 1, wherein the transforming module (38a) converts, during a first time-interval, first antenna signals received via a first antenna (25) and converts, during a second time-interval, second antenna signals received via a second antenna (26).

3. Diversity system (3) as defined in claim 1 for further transmitting a return signal (5) comprising at least two sub-carriers from the second unit (2,2a) to the first unit (1), which first unit (1) further comprises a receiver (12) for receiving the return signal (5), which second unit (2,2a) further comprises a transmitter (21,21a) coupled to at least two antennas (25,26) located at different positions for transmitting the return signal (5), which transmitter (21,21a) comprises a reverse processing module (49) for generating sub-carrier-vectors per sub-carrier and per antenna (25,26) and a reverse transforming module (48,48a) for converting the sub-carrier-vectors into antenna signals to be transmitted.

4. Diversity system (3) as defined in claim 3, wherein the reverse transforming module (48a) converts, during a first time-interval, first sub-carrier-vectors into first antenna signals to be transmitted via a first antenna (25) and converts, during a second time-interval, second sub-carrier-vectors into second antenna signals to be transmitted via a second antenna (26).

5. Unit (2,2a) for receiving a signal (4) comprising at least two sub-carriers from a further unit (1), which unit (2,2a) comprises a receiver (22,22a) coupled to at least two antennas (25,26) located at different positions for receiving the signal (4), which receiver (22,22a) comprises a transforming module (38,38a) for converting received antenna signals into sub-carrier-vectors per sub-carrier and per antenna (25,26) and a processing module (39,39a) for processing the sub-carrier-vectors per sub-carrier.

6. Unit (2a) as defined in claim 5, wherein the transforming module (38a) converts, during a first time-interval, first antenna signals received via a first antenna (25) and converts, during a second time-interval, second antenna signals received via a second antenna (26).

7. Unit (2,2a) as defined in claim 5 for further transmitting a return signal (5) comprising at least two sub-carriers to the other unit (1), which unit (2,2a) further comprises a transmitter (21,21a) coupled to at least two antennas (25,26) located at different positions for transmitting the return signal (5), which transmitter (21,21a) comprises a reverse processing module (49) for generating sub-carrier-vectors per sub-carrier and per antenna (25,26) and a reverse transforming module (48,48a) for converting the sub-carrier-vectors into antenna signals to be transmitted.

8. Unit (2a) as defined in claim 7, wherein the reverse transforming module (48a) converts, during a first time-interval, first sub-carrier-vectors into first antenna signals to be transmitted via a first antenna (25) and converts, during a second time-interval, second sub-carrier-vectors into second antenna signals to be transmitted via a second antenna (26).

9. Method for receiving a signal comprising at least two sub-carriers via at least two antennas (25,26) located at different positions, which method comprises a transforming step for converting received antenna signals into sub-carrier-vectors per sub-carrier and per antenna (25,26) and a processing step for processing the sub-carrier-vectors per sub-carrier.

10. Processor program product for receiving a signal comprising at least two sub-carriers via at least two antennas (25,26) located at different positions, which processor program product comprises a transforming function for converting received antenna signals

into sub-carrier-vectors per sub-carrier and per antenna (25,26) and a processing function for processing the sub-carrier-vectors per sub-carrier.

11. Transforming module (38,38a) for use in a unit (2,2a) for receiving a signal (4) comprising at least two sub-carriers from a further unit (1), which unit (2,2a) comprises a receiver (22,22a) coupled to at least two antennas (25,26) located at different positions for receiving the signal (4), which receiver (22,22a) comprises the transforming module (38,38a) for converting received antenna signals into sub-carrier-vectors per sub-carrier and per antenna (25,26) and a processing module (39,39a) for processing the sub-carrier-vectors per sub-carrier.

12. Processing module (39,39a) for use in a unit (2,2a) for receiving a signal (4) comprising at least two sub-carriers from a further unit (1), which unit (2,2a) comprises a receiver (22,22a) coupled to at least two antennas (25,26) located at different positions for receiving the signal (4), which receiver (22,22a) comprises a transforming module (38,38a) for converting received antenna signals into sub-carrier-vectors per sub-carrier and per antenna (25,26) and the processing module (39,39a) for processing the sub-carrier-vectors per sub-carrier.